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(54) **METHOD AND APPARATUS FOR PROVIDING REAL TIME EXECUTION OF SPECIFIC COMMUNICATIONS SERVICES IN AN INTELLIGENT NETWORK**

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(58) Field of Search **379/201.01-201.05, 379/207.02, 219, 220.01, 221.08-221.12, 229, 230; 709/315, 316, 317**

(56) References Cited

U.S. PATENT DOCUMENTS

4,713,806 A	12/1987	Oberlander	370/358
5,157,390 A	10/1992	Yoshie et al.	340/825.52
5,323,452 A	6/1994	Dickman et al.	379/201.04
5,335,268 A	8/1994	Kelly, Jr. et al.	379/112.05
5,450,480 A	9/1995	Man et al.	379/201.03
5,463,682 A	10/1995	Fisher et al.	379/201.04
5,475,817 A	12/1995	Waldo et al.	709/316

5,537,466 A	7/1996	Taylor et al.	379/221.11
5,551,035 A	8/1996	Arnold et al.	709/315
5,619,557 A	4/1997	Van Berkum	379/265.02

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

WO	95/23483	8/1995
WO	96/13949	5/1996
WO	96/20448	7/1996
WO	98/09421	3/1998
WO	00/23898	4/2000
WO	00/24182	4/2000

OTHER PUBLICATIONS

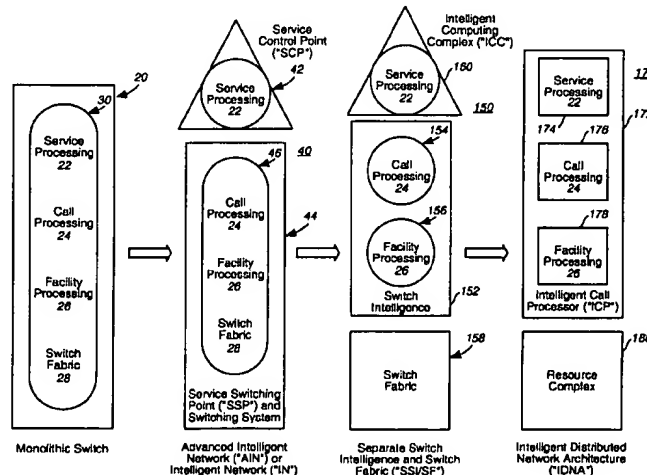
Stowe, M. "Service Management for the Advanced Intelligent Network" Countdown to the New Millennium. Phoenix, Dec. 2-5, 1991, Proceeding of the Global Telecommunications Conference, (Globecom), New York, IEEE, US, vol. 3, Dec. 2, 1991, pp. 1667-1671.

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(57) ABSTRACT

System and methodology for providing real-time call processing services received at a switch in an intelligent network having one or more service nodes having originating switches for receiving a call event. The system includes a platform-independent communication system for enabling communication between object instances executing at service nodes in the intelligent network. An operating system agent object instance executing in an execution environment associated with an originating switch communicates call origination information corresponding to a call event received at the switch to one or more object instances executing in an execution environment provided at a service node in the network; the object instances including a line object instance for maintaining the state of a communications line associated with a call origination, and, a service object implementing methods for performing a service according to a customer request.

32 Claims, 25 Drawing Sheets



U.S. PATENT DOCUMENTS

5,644,629 A	7/1997	Chow	379/142.07	5,991,811 A	11/1999	Ueno et al.	709/231
5,664,102 A	9/1997	Faynberg	707/246	5,999,965 A	12/1999	Kelly	709/202
5,742,668 A	4/1998	Pepe et al.	455/415	6,014,700 A	1/2000	Bainbridge et al.	709/226
5,754,639 A	5/1998	Flockhart et al.	379/265.05	6,041,109 A	3/2000	Waller et al.	379/201.01
5,754,939 A	5/1998	Herz et al.	455/3.04	6,041,117 A	3/2000	Androski	379/268
5,774,668 A	6/1998	Choquier et al.	709/223	6,044,142 A	3/2000	Hammarstrom et al.	379/223
5,799,153 A	8/1998	Blau et al.	709/223	6,044,368 A	3/2000	Powers	707/2
5,825,865 A	10/1998	Oberlander et al.	379/211.02	6,085,030 A	7/2000	Whitehead et al.	709/203
5,825,869 A	10/1998	Brooks et al.	379/265.12	6,101,616 A	8/2000	Joubert et al.	714/11
5,826,268 A	10/1998	Shaefer et al.	709/9	6,122,510 A	9/2000	Granberg	455/433
5,828,747 A	10/1998	Fisher et al.	379/265.12	6,134,530 A	10/2000	Bunting et al.	705/7
5,838,970 A	11/1998	Thomas	709/316	6,182,109 B1	1/2001	Sharma et al.	709/104
5,867,498 A	2/1999	Gillman et al.	370/385	6,208,856 B1	3/2001	Jonsson	455/424
5,881,134 A	3/1999	Foster et al.	379/88.01	6,266,406 B1	7/2001	Mercouroff et al.	379/230
5,892,946 A	4/1999	Woster et al.	709/316	6,295,353 B1	9/2001	Flockhart et al.	379/265.02
5,898,839 A	4/1999	Berteau	709/227	6,321,323 B1 *	11/2001	Nugroho et al.	711/103
5,907,607 A	5/1999	Waters et al.	379/201.03	6,324,275 B1	11/2001	Yagel et al.	379/201.03
5,915,008 A	6/1999	Dulman	379/24.08	6,327,355 B1 *	12/2001	Britt	379/201.03
5,923,892 A *	7/1999	Levy	709/208	6,330,326 B1	12/2001	Whitt	379/265.13
5,940,616 A	8/1999	Wang	717/127	6,418,461 B1 *	7/2002	Barnhouse et al.	709/201
5,958,016 A	9/1999	Chang et al.	709/229	6,453,038 B1	9/2002	McFarlane et al.	379/265.05
5,966,434 A	10/1999	Schafer	379/201.01				

* cited by examiner